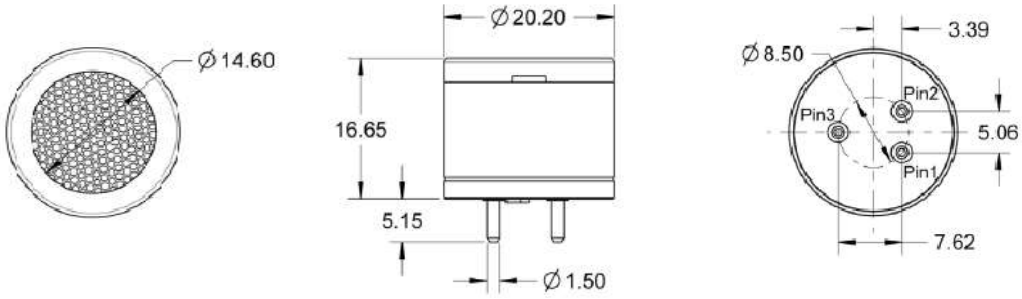
4S PID is a 4-Series photoionization detector (PID) sensor with DC voltage outputs. It is designed for the detection of 0-10,000 ppm volatile organic compounds (VOCs). The resolution can be chosen from 5 to 1,000 ppb (1 ppm) based on the applications. It is powered by 3.3 to 5.5 VDC. The maximum working current is less than 80 mA. The 4S PID is packaged in a stainless-steel enclosure. The dimensions and pinout of the sensor are shown below.



Pinout			
	Pin 1	Vcc	Power supply positive
	Pin 2	GND	Power supply ground
	Pin 3	Vout	Analog signal output

A DC power supply needs to be used with the voltage output between 3.3 and 5.5 V. If the voltage is lower than 3.3 V, the sensor will have no response and no output to VOCs. If the voltage is higher than 5.5 V, it will damage the internal power integrated circuits and cause the sensor not functioning permanently. Therefore, choosing a DC power supply with the output between 3.6 or 5.0 V is recommended. For the 4S PID with high resolutions, the applied voltage from the DC power supply should be stable and have no ripples within 10 mV, and never exceed 20 mV to prevent fault signal outputs.

Before powering the 4S PID, the pinout diagram needs to be carefully verified to ensure the DC power supply is connected correctly. A reversed connection will damage the sensor internal power integrated circuits and cause the sensor to be permanently damaged.

The working current of the 4S PID is less than 80 mA during normal operation. However, it takes a sudden large current about 120 mA that lasts 200 ms to ignite the UV lamp inside the sensor. Therefore, the design of the power supply circuit for the sensor needs a redundant energy to ensure the successful start-up of the sensor at the power-ups.

The output signal of the 4S PID usually does not exceed 2.5 V so that it can be directly connected to ADC, voltage follower or MCU pin. Due to the large internal resistance of Vout (≥ 100 K), it is not recommended to directly connect it with an amplifier or directly use the impedance divider circuit to process the signal output.